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(71) Applicant (for all designated States except US): **INTUNE
TECHNOLOGIES LIMITED** [IE/IE]; 9c Beckett Way,
Park West Business Park, Dublin 12 (IE).

(71) Applicants and

(72) Inventors (for US only): **MULLANE, Tommy** [IE/IE];
9c Beckett Way, Park West Business Park, Dublin 12 (IE).
MCDONALD, David [IE/IE]; 9C Beckett Way, Park West
Business Park, Dublin 12 (IE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FARRELL, Tom**
[IE/IE]; 9C Beckett Way, Park West Business Park, Dublin
12 (IE). **POLLEY, Ciaran** [IE/IE]; 9C Beckett Way, Park
West Business Park, Dublin 12 (IE). **O'CONNOR, Pe-**
ter, B. [IE/IE]; 9C Beckett Way, Park West Business Park,
Dublin 12 (IE).

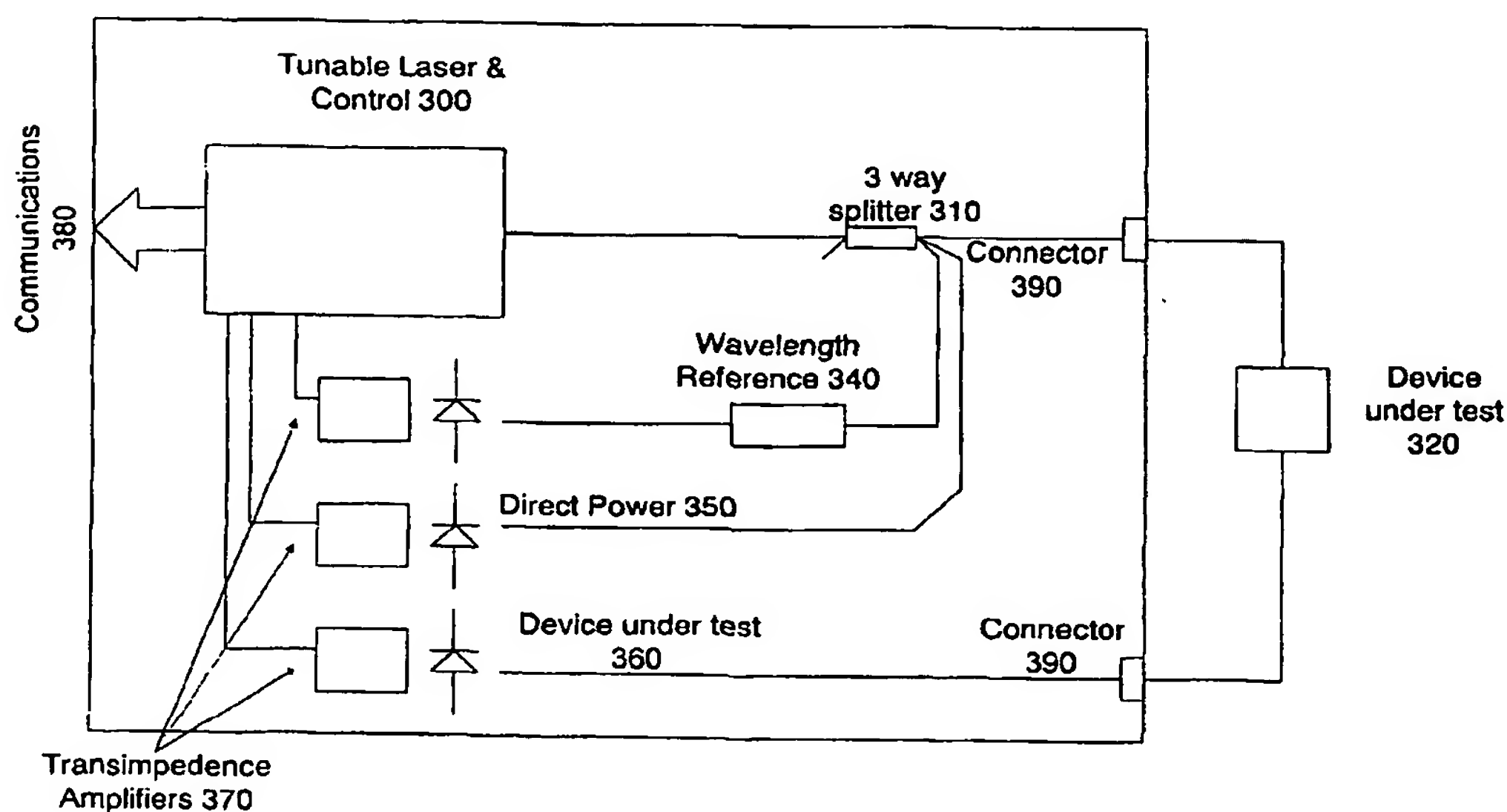
(74) Agents: **SHORTT, Peter, Bernard et al.**; Tomkins & Co.,
5 Dartmouth Road, Dublin 6 (IE).

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(54) Title: METHOD AND SYSTEM FOR CONTINUOUS SWEEPING OF A TUNABLE LASER



(57) Abstract: The invention relates to a method and system for providing a set of continuous tuning regions from a discontinuously tuned laser, by providing a wavelength reference having at least first and second resonance peaks, sweeping the laser across a pre-determined wavelength range of the wavelength reference, and defining, within the laser sweep, one or more regions of continuous tuning operation of the laser, each of the regions corresponding to a response of the laser between adjacent resonance peaks of the wavelength reference. The advantage of the invention is that it provides a way for stitching together continuous regions of a multi-section tunable laser in an efficient and accurate manner.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GLANCE B ET AL: "ONE-THZ DIGITAL RANDOM ACCESS HIGH RESOLUTION OPTICAL FREQUENCY SYNTHESIZER PROVIDING COLD-START OPERATION FROM A FREQUENCY REFERENCE" COMMUNICATIONS : CONNECTING THE FUTURE. SAN DIEGO, DEC. 2 - 5, 1990, PROCEEDINGS OF THE GLOBAL TELECOMMUNICATIONS CONFERENCE AND EXHIBITION(GLOBECOM), NEW YORK, IEEE, US, vol. VOL. 2, 2 December 1990 (1990-12-02), pages 766-767, XP000220883 ISBN: 0-87942-632-2 the whole document	1, 18, 22, 26
A	US 6 504 856 B1 (ANDERSSON LARS ET AL) 7 January 2003 (2003-01-07) column 3, line 20 - line 30; figure 4 figures 7,8	1, 18, 22, 26
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Hervé, D

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>SARLET G ET AL: "CONTROL OF WIDELY TUNABLE SSG-DBR LASERS FOR DENSE WAVELENGTH DIVISION MULTIPLEXING" JOURNAL OF LIGHTWAVE TECHNOLOGY, IEEE. NEW YORK, US, vol. 18, no. 8, August 2000 (2000-08), pages 1128-1138, XP000989390 ISSN: 0733-8724 the whole document</p>	1,18,22, 26
A	<p>UPSCHULTE B L ET AL: "MEASUREMENTS OF CO, CO2, OH, AND H2O IN ROOM-TEMPERATURE AND COMBUSTION GASES BY USE OF A BROADLY CURRENT-TUNED MULTISECTION INGAASP DIODE LASER" APPLIED OPTICS, OPTICAL SOCIETY OF AMERICA, WASHINGTON, US, vol. 38, no. 9, 20 March 1999 (1999-03-20), pages 1506-1512, XP000828580 ISSN: 0003-6935 page 1508; figure 3</p>	1,18,22, 26

INTERNATIONAL SEARCH REPORT

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6504856	B1	07-01-2003	
		SE 519081 C2	07-01-2003
		AU 2304699 A	23-08-1999
		CA 2316820 A1	12-08-1999
		EP 1050088 A1	08-11-2000
		JP 2002503036 T	29-01-2002
		SE 9800143 A	22-07-1999
		WO 9940654 A1	12-08-1999